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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,164	11/13/2003	Hyoung-Rae Kim	SAM-0504	8205

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EXAMINER	
DHARIA, PRABODH M	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,164	KIM, HYOUNG-RAE	
	Examiner	Art Unit	
	Prabodh M. Dharia	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04-01-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because total word count exceeds 150.

Correction is required. See MPEP § 608.01(b).

Drawings

4. Figures 1-4E should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Morita (US 2002/0196243 A1).

Regarding Claim 12, Morita teaches teaches a driving method of a super twisted nematic (STN) liquid crystal display (LCD) driver using an nFRC (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317) method, wherein a polarity of the STN LCD is inverted in each frame (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-11 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (US 2002/0196243 A1) in view of Hirai et al. (5,953,002).

Regarding Claims 1, Morita teaches a super twisted nematic (STN) (page 3, paragraph 63) liquid crystal display (LCD) driver (see figure 1, page 7, paragraphs 138,139, page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317, paragraphs 326-333, page 15, paragraphs 291-297) comprising: a sub frame counter (page 15, paragraphs 291-297, page 16, paragraphs 311-317), which counts the number of sub frames in response to a clock signal (page 15, paragraphs 291-297, page 16, paragraphs 311-317, 327), and generates a sub frame flag (indication of counting done and reset signal generation by the counter) signal every time each sub frame is counted (page 16, paragraph 327); an N clock counter, which receives an N-line signal and generates an N-line flag signal every time the number of N-line counted is N in response to the clock signal (page 16, paragraphs 326,327); a frame counter, which receives a frame rate control (FRC) selection signal (page 16, paragraph 326), counts the number of the sub frame flag signal, and generates a frame flag signal every time the number of the sub frame flag signal counted is n (page 16, paragraphs 326-333); and a liquid crystal polarity inversion signal generator, which receives one of the sub frame flag signal, the N-line flag signal, and the frame flag signal in response to the FRC selection signal, and generates a liquid crystal polarity inversion signal that inverts a polarity of an STN LCD (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317, paragraphs 326-333, page 15, paragraphs 291-297).

However, Morita teaches STN LCD displaying moving pictures where each moving picture will have multiple frames which are construed as sub-frames however, fails to recite and specifically disclose.

However, Hirai et al. teaches STN LCD (Col. 31, lines 64-66, 41-44), comprising a sub frame counter (Col. 19, Line 28, Col. 14, Lines 28-43), which counts the number of sub frames in response to a clock signal a frame counter, which receives a frame rate control (FRC) selection signal to process display data (Col. 19, Lines 22-45, Col. 27, Line 49 to Col. 28, Line 4).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Hirai et al. in the teaching of Morita to be able to drive liquid crystal display device capable of efficiently supplying information and providing a correct gradation display without flickering (Col. 26, Lines 37-48).

Regarding Claims 2, Morita teaches the STN LCD driver further comprises: a column driver, which receives data and generates a segment voltage that drives a column electrode of the STN LCD in response to a level of the liquid crystal polarity inversion signal; and a row driver, which receives a row selection signal and generates a corn voltage that drives a row electrode of the STN LCD in response to the level of the liquid crystal polarity inversion signal (page 12, paragraphs 247,248, page 13, paragraphs 249-256).

Regarding Claim 3, Morita teaches the FRC selection signal has information on whether a driving method of the STN LCD is an nFRC method, where n is a natural number (page 3, paragraph 63, page 15, paragraph 306-308, page 16, paragraphs 326,327).

Regarding Claim 4, Morita teaches the N-line signal has information used to divide a frame into N sub frames, where N is a natural number (page 16, paragraph 326,327).

Regarding Claim 5, Morita teaches a super twisted nematic (STN) (page 3, paragraph 63) liquid crystal display (LCD) driver (see figure 1, page 7, paragraphs 138,139, page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317, paragraphs 326-333, page 15, paragraphs 291-297) method comprising: (a) counting the number of sub frames in response to a clock signal and generating a sub frame flag signal every time each frame is counted (page 15, paragraphs 291-297, page 16, paragraphs 311-317, 327); (b) receiving an N-line signal and generating an N-line flag signal in response to input of the clock signal every time the number of N-line counted is N in response to the clock signal (page 16, paragraph (page 16, paragraphs 326,327); (c) receiving a frame rate control (FRC) selection signal, counting the number of sub frame flag signals, and generating a frame flag signal every time the number of sub frame flag signals counted is n (page 16, paragraphs 326-333); and (d) selecting one of the sub frame flag signal, the N-line flag signal, and the frame flag signal in response to the FRC selection signal, and generating a liquid crystal polarity inversion signal that inverts a polarity of the STN CLD (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317, paragraphs 326-333, page 15, paragraphs 291-297).

However, Morita teaches STN LCD displaying moving pictures where each moving picture will have multiple frames which are construed as sub-frames however, fails to recite and specifically disclose.

However, Hirai et al. teaches STN LCD (Col. 31, lines 64-66, 41-44), comprising a sub frame counter (Col. 19, Line 28, Col. 14, Lines 28-43), which counts the number of sub frames in response to a clock signal a frame counter, which receives a frame rate control (FRC) selection signal to process display data (Col. 19, Lines 22-45, Col. 27, Line 49 to Col. 28, Line 4).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Hirai et al. in the teaching of Morita to be able to drive liquid crystal display device capable of efficiently supplying information and providing a correct gradation display without flickering (Col. 26, Lines 37-48).

Regarding Claim 6, Morita teaches the driving method of the STN LCD driver (see figure 1, page 7, paragraphs 138,139, page 3, paragraph 63) further comprises: (e) receiving data and generating a segment voltage that drives a column electrode of the STN LCD in response to the level of the liquid crystal polarity inversion signal; and (f) receiving a row selection signal and, in response to the level of the liquid crystal polarity inversion signal, generating a corn voltage that drives a row electrode of STN LCD (page 12, paragraphs 247,248, page 13, paragraphs 249-256).

Regarding Claim 7, Morita teaches the FRC selection signal has information on whether a driving method of the STN LCD is an nFRC method, and the n is a natural number (page 3, paragraph 63, page 15, paragraph 306-308, page 16, paragraphs 326,327).

Regarding Claim 8, Morita teaches the N-line signal has information used to divide a frame into N sub frames, and the N is a natural number (page 16, paragraph 326,327).

Regarding Claim 9, Morita teaches a driving method of a super twisted nematic (STN) liquid crystal display (LCD) driver (page 3, paragraph 63), the driving method comprising: (a) determining whether a frame rate control (FRC) selection signal is in accordance with an nFRC method (page 15, paragraph 306-308, page 16, paragraphs 326,327); (b) counting the number of sub frames (page 15, paragraphs 300-308); and (c) generating a liquid crystal polarity inversion signal that inverts a polarity of the STN LCD if the number of sub frames is n (page 32, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317).

However, Morita teaches STN LCD displaying moving pictures where each moving picture will have multiple frames which are construed as sub-frames however, fails to recite and specifically disclose.

However, Hirai et al. teaches STN LCD (Col. 31, lines 64-66, 41-44), comprising a sub frame counter (Col. 19, Line 28, Col. 14, Lines 28-43), which counts the number of sub frames in response to a clock signal a frame counter, which receives a frame rate control (FRC) selection signal to process display data (Col. 19, Lines 22-45, Col. 27, Line 49 to Col. 28, Line 4).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Hirai et al. in the teaching of Morita to be able to drive liquid crystal display device capable of efficiently supplying information and providing a correct gradation display without flickering (Col. 26, Lines 37-48).

Regarding Claim 10, Morita teaches (d) receiving data and, in response to the level of the liquid crystal polarity inversion signal, generating a segment voltage that drives a column electrode of the STN LCD (page 3, paragraph 63, page 12, paragraphs 241-248, page 13 paragraphs 248-250, page 15, paragraphs 300-308, page 16, paragraphs 311-317); and (f) receiving a row selection signal and, in response to the level of the liquid crystal polarity inversion signal, generating a corn voltage that drives a row electrode of the STN LCD (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317).

Regarding Claim 11, Morita teaches n sub frames constitute one frame (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317).

Regarding Claim 13, Morita teaches one frame is comprised of n sub frames (page 3, paragraph 63, page 15, paragraphs 300-308, page 16, paragraphs 311-317).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Reddy (6,175,355 B1) Dispersion-based technique for modulating pixels of a digital display panel.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

11. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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06-19-2006

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